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BRITISH NORTH AMERICAN MINING COMPANY.

COPIES OF CAPTAIN JOHN TREGONING'S REPORTS.

FIRST REPORT.

Prince's Harbour, 6th Dec., 1848.

SUMP SHAFT.—Sunk three feet; and if any change since the last report, it is, that there is a little more copper ore. (Suspended.)

EXCAVATION H.—I was obliged to withdraw the force previous to the suspension of the shaft, on account of the men here employed being inexperienced in mining. The copper ore, as I have already stated, is to be seen here for three fathoms in length, and four feet in depth, which will yield pretty good stamp work, the same as sample S. W. H. already sent, and button S. W. H. that goes with this letter. (Suspended.)

MAIN LAND.

CROSSCUT, which is traversing the lode, in the same longitude of the site from where the native silver was taken, has been driven six feet, and crossed several branches of quartz spar, iron pyrites, calc. spar, and amythestine quartz; some of it exactly the same sort, as the native silver occurred in, and although two stones cannot be more alike, yet, in this Crosscut we have not seen a single particle of silver. It brought to our view a large cavity in the lode, nine feet in length, and three in depth, studded with scores of quartz and calcarous specimens,

some of which are very interesting, in a geological point of view. They are and will all be taken care of, until I shall be favored with the pleasure of the Directors. I have now about six feet of the cavity enlarged to the usual size of a gallery, and shall continue to push it on a little more forward. Stationed two men in the Crosscut. The gallery is at this present moment suspended, on account of two men invalided with sore hands and feet, from slight blows underground with the hammer.

WINZE B.—The rocks in the bottom, amythestine quartz, calc. spar, and trap, carrying more lead than usual, and the appearances altogether are encouraging. The silver it contains may be seen in the paper headed M: Land, Winze B. bottom of. Stationed three men.

EXCAVATION B2.—There is no change, as there is but little done. For the silver it contains, see paper headed 'Rock from round about the silver bunch.' (Suspended.)

WINZE A.—Crosscut—the vein the same. The prillion of silver per oz. troy of washed ore. See paper headed 'from the Crosscut at Winze A.' (Suspended.)

GALLERY X—or the gallery going into the mountain—has been suspended since my last report of it; but I have assayed a sample of the ore for the prillion. Please refer to the paper headed 'extreme end of the level going into the mountain.'—Stationed two men.

BORE HOLES C. and D.—The prillions of the samples I beg to send you with this letter.

AIR SHAFT.—As I had no time to take tracings of my explanatory map, I have missed the marks and number. It is over, and a little to the north of, the Bore hole A. We commenced to make a bore hole, in order to ventilate the Crosscut, Winze A, and the Gallery X, but from the unusual quantity of minerals observed in the triturated rock, I determined to carry it down full size. In addition to the several spars already named, we have here lumps of iron pyrites, as large as apples. Stationed five men, three sinking and two raising. The prillion in the paper headed 'half oz. Troy,' was taken from some ore in a barrel, (before the office, 32 lbs.) which produced of washed ore

one ounce similar to that assayed, and six ounces inferior, but still very rich. My object in assaying this, was to shew the Directors to what perfection their ores are susceptible, by mechanical separation, (there is I believe some more of this kind in a barrel,) and also the buttons of copper ore, —see paper headed 'S. S. half oz. Troy,' which was taken from the sump shaft, and S. W. H. from excavation H. half oz. Troy.

CONCLUSINO.

In addition to the information already laid before the Board in my former reports, the result of the above assays, I flatter myself to think, that the Directors will clearly see, that their mines have undergone a close and strict examination by me; and although their expectations may perhaps not have been fully realized, it is not owing to any defect in their mining property; and I now not only confirm my previous opinion, but would recommend the works to be prosecuted on a more extensive scale than I have hitherto proposed, viz.: to sink sump shaft at Spar Island to twenty fathoms, Winze B, Mainland, to sink twenty fathoms, and to drive gallery X into the mountain mainland twenty fathoms. The whole could be done in twelve months, (less if the water should be easy), with twelve real miners, and ten labourers, provided contract work be given, which I should advise, but which is not practicable at this moment, for reasons unnecessary now to go into; which, I think, would be a pretty good trial for the mine, and one that it is well deserving of. And, in addition to this, I should work the excavation H by three men, and build the stamps that I proposed in my last report. I can only say, let me build it for £150, and next summer I will prepare ten tons of copper ore, five of which shall produce twenty per cent. for copper, and the remaining five tons thirty per cent. for copper; how much more than this I cannot tell, but in all probability a great deal.

SECOND REPORT.

Prince's Bay, Jany. 4th, 1849.

MAIN LAND.

WINZE B.—The sinking has been going on steadily by three men, and by increasing the size of the hole to blast, with it, is

a little faster than before. The rock is extremely compact, and more trap than usual. Next week I intend to work by nine men, in equal corps of three, and revolving courses of eight hours.

GALLERY X.—The calcarous rocks have been displaced by insinuating quartz. There is less blende and more iron pyrites, than common. The rock is a very compact and expensive one to excavate.

AIR SHAFT.—The communication is nearly completed, and as soon as it is, six of the men that we employed about it will be stationed at Winze B, and the remaining two at Gallery X, which will work these two places without intermission. I stated in my last report that the upper part of this shaft was very promising, and the succeeding piece of lode, I think, so far as indications go, was well enough; but as we descend, it assumes the character of gallery X, which is now (as previously stated) in the connecting link of the argentiferous and plumbiferous regions of the vein.

THIRD REPORT.

Prince's Bay, Jany. 15th, 1849.

There is nothing particular to report on in the mine, since I sent my monthly report on the 4th instant; but as I believe it will be interesting to the Directors to hear by every opportunity, I have to state, that the sinking of Winze B is at present by nine men. In the bottom, there is a little more spar than some time since; but no silver to be seen in any part of the mine. We have got through the lode in the Crosscut at Winze A; consequently it is now idle. There were a few spots of lead discovered, and the men that were employed in the Crosscut are now preparing to sink the Winze. The Gallery X is being driven by six men. The rock is very compact. No minerals of any value to be seen.

CROSSCUT—which has now traversed the lode at the brace of Winze B, but nothing discovered worthy of notice since last report.

WINZE A.—At present I have two men driving the Crosscut in order to get the wall of the lode, after which, if there is

nothing discovered, I shall sink the Winze. There is some particles of lead and blende to be seen in the Crosscut, but very little, and not a single trace of silver to be seen any where in the mine. Notwithstanding, I would still recommend, that the Sump Shaft, Winze B, and Gallery X, be sunk and driven twenty fathoms, respectively, so as to give the mine a thorough trial.

I have seventeen men working underground, one drawing wood with the horse, carpenter, smith and assistant, cook and cook's mate, are all.

The winter is very mild. The coldest day was the 22d ultimo, when the thermometer indicated 22 below zero.

FOURTH REPORT.

February 14th, 1849.

MAIN LAND.

GALLERY X.—Nearly all quartz rock, five feet thick, thinly speckled with galena, blende, iron pyrites and copper pyrites; and sometimes the spar is tingled green, blue, and red. No silver to be seen. It is extremely compact, and very full of cavities, which make it highly expensive for driving.

WINZE A.—As I intimated in my last report, as soon as the plat, &c., was complete, we commenced to sink, [as I took four men from Gallery X, and Winze B, I arranged the men in the following order—Gallery X, 4; Winze A, 6; Winze B, 6; to pursue the cavity by a gallery; two, sometimes one, has to bring firewood;] and the bottom is nearly all calcarous spar, with a little blende, and occasionally a speck of galena.

WINZE B.—This is the deepest point in all the works, and directly under from where the native silver was taken, about ten fathoms, to the south of Winze A, it is from the brace seven fathoms in depth. It has hitherto been sunk downright, and having cut the foot well, we are now sinking on the course of the lode. It is inclining westerly, (a little.) Six men sunk five feet, this last fortnight. More trap than common, and a little blende to be seen in the spars, but no silver to be seen in any part of the mine.

GALLERY PURSUING THE CAVITY.—Quartz and calcarous

spars, thinly speckled with blende and iron pyrites.

CONCLUSION.

The sump shaft, at Spar Island, I should sink to twenty fathoms in depth. In this work there could be nine miners and two labourers employed. The excavation H, I should work by three miners; and in such case there would be a smith and cook required. The present smith's assistant (Bellmore) would be sufficient, who would re-engage. The smith and carpenter would re-engage. Winze B, Mainland, I should continue to sink, until it reached twenty fathoms from the brace. Nine men could be employed.

GALLERY X.—I should continue to drive until the above works were completed.

The stamps I have proposed I should also build; and, in case it should be on this Lake, I have enclosed a list of materials that would be wanted.

FIFTH REPORT.

Prince's Harbour, March 3d, 1849.

On the 13th ult. I sent you the monthly report of the mines; but being favoured with the Secretary's letter of the 20th of December, I beg to send you an addition to the measurements of the works, and to recapitulate my proposed plan for working.

First measurements of works executed since the explanatory map:—

	Feet lineal.	Size in feet.
Gallery X.....	23 ...	6 by 5
Air Shaft and rise.....	29 ..	6 " 5
Winze B, including 10 feet underlay,	33½ ..	6½ " 5½
Winze A	15 ..	6 " 4½
Crosscut East at Winze B's Brace ...	9 ..	6 " 4½
" West	3 ..	6 " 4
Gallery to develop the Cavity at Winze B's Brace	13 ..	5 " 3
Excavation B 2.....	3 ..	9 " 6
Flat at Winze A	6 ..	3 " 6
Sump Shaft, Spar Island.....	19 ..	7 " 5
Whim Shaft	9 ..	6 " 4
Excavation H	18 ..	4 " 9

The Adit at Spar Island I have not the measurement of, but it is completed, together with one house and one shed; and there are also a great many trial pits opened, which I have not measured.

If the above measurements be laid on the explanatory map, it will be perceived that no part of our works are yet ten fathoms, under the adit, which is not sufficient depth, if we reason analogically, to arrive at that part of 'a champion lode,' where the silver ore forms in a body, in the shape of a 'partial band.' 'shoot,' 'bunch,' or any other form; but so far as indications go, we have every thing that can be wished for; and large 'feeders,' or 'droppers,' are now falling into the lode, which are the surest indications of our approach to riches. The lode is the largest, I think, I ever saw; and the feeders are as big as common sized lodes.

RECAPITULATION.

To sink Winze B, until it shall reach twenty fathoms in depth from the brace; to drive Gallery X, during the sinking of the Winze; to sink Sump Shaft on Spar Island to twenty fathoms in depth; to work Excavation H, during the sinking of the Shaft; to build the Stamping Mill, as I have proposed, which would return the ore with profit. The whole of the above could be done in nine months from this time, with the present force, and it is what the mine is well deserving of.

I am always in favour of contract work; but the men are working very well, and so are the Canadians, and all would re-engage for a little advance of salary. Some would like to go down to return. I beg to reciprocate your compliments.

FIFTH REPORT.

Sault St. Marie, 15th June, 1849.

I arrived here this afternoon, having left the mine on the 30th ult., in consequence of ill health, and desirous of obtaining medical advice.

Mr. Robertson reached Spar Island on the 22nd ultimo, and on the 23rd I received your letter of the 10th April by an Indian walking over the ice, which surrounded the vessel, and on the 29th it broke, and the vessel came to the wharf.

The mine is as encouraging as can be, without being really in the bunch; for, when I left, in the bottom of winze B. there were beautiful leaders of iron pyrites under the feeders that crossed the lode some time since. I very much regret that Spar Island was suspended; however, I hope to convince the Directors that it should be worked, and the stamping mill built, to return the ores with profit. I shall leave this for Montreal by first opportunity, where I hope to lay my report and assays before the Directors in an intelligible form, with a retrospective and prospective view of the concern.

N. B.—Mr. Robertson of course remained at the mines, and to whom I gave a special description of the works under existing circumstances, that I wish to be carried out; and in case of any difficulty presenting itself at the mine, I have recommended him to let Samuel Tippet arrange it, who is fully capable, and who would have been made Captain had he remained in England.

SIXTH REPORT.

Montreal, 25th June, 1849.

I left the mines on the 30th ult. in charge of Mr. Robertson, in consequence of ill health and being desirous to obtain some medical advice.

I arrived here on the 22d inst., delivered the letters and reports to the Secretary on the 23d, and received the map of the mine, together with the weight of my assays; so I hope now to make every thing as clear as possible, and lay down the workings on the explanatory map to the 28th ultimo, before commencing with the report.

I am extremely anxious to pass next winter where I could obtain medical assistance; and, for that reason, I beg of the Directors for a dissolution of my present agreement,—conforming with that article of my agreement in which the Directors have reserved power to do so;—to obtain an immediate dissolution I would give up the passage money, but not the three months pay or notice of three months.

On the 25th ultimo I received the Secretary's letters of the 10th April, sent me by Mr. Robertson, who arrived at Spar

Island the day before, but did not reach the wharf of the mines until the 28th; and it was not until the 1st June that I received the Secretary's letters of the 19th January and 20th February, at Fort William, on my way down.

As the Company's copper ore cannot be 'crushed,' it is useless for me to calculate thereon as to the result of the weight of the assays. In taking them altogether, they are very satisfactory; the richest ore being equal to 15 per cent. for silver; the second and third being equal to about 70 oz. to the ton; and the best copper ore to 25 per cent., and the worst to 15 per cent.,—however, the first, I am convinced, by mechanical separation, is to be raised to 50 per cent., and the last to 24 per cent. of copper. As the Directors are aware, the object in making the above assays was to show the Directors, and to know myself, to what perfection your metals are susceptible by mechanical separation.

By a reference to the explanatory map, it will be perceived on what part of the mine the works have been carried on during the last nine months, and the extent thereof, excepting the trial pits, it amounts to thirty-five fathoms lineal. At the main land it has proved the ramifications of the metalliferous vein to be converging in depth, escorted by droppers and feeders, and accompanied by leaders, which are the surest indications of our proximity to riches; and although we have not been able to work ore on Spar Island during the winter, yet the discovery of the branches of the lode, concentrating in depth at the main land, is very satisfactory, even for Spar Island. In this way, as the branches of the lode are converging, as we descend, on the main land, it would be unreasonable to suppose the branches of the same lode to be diverging, as we descend on another part of it. I use this by way of comparison, but it is not what I meant by analogical reasoning when I wrote my first report.

I have only to recapitulate my proposed plan for working, viz., to sink the shaft and drive the gallery at the main land; to sink the shaft and work excavation H on Spar Island, and build the stamping mill,—the power of which will govern the returns. Ten stamp heads being capable of thirty tons of

copper ore per month, that would yield 24 per cent. of pure copper; the cost would be in raising, pulverising, and washing, £7 per ton for ore of 24 per cent.; and calculating the ore to be worth £17 per ton, it would leave clear profit, £10 per ton at the mine.

I can say no more of what quantity there is to be depended on than I have already said, which is, "that in all probability it would be a great deal." I can say, if it only holds as it is, that with thirty stamp heads, and calculating the ore of 24 per cent. to be worth £17 per ton, there would be no difficulty in making £900 per month profit.

I should get the engine made on the principal of the steam-boat engine, with hauling and drawing engine on one side, stamping mill and fixtures for blast cylinders on the other; for creating wind for a blast furnace, should it be found more profitable to smelt the copper ore on the mine than to export it, producing 24 per cent. There is an abundance of wood on our location for making charcoal, and that of the very best quality, (birch). As it is now impossible for the Company to erect the machinery until next summer, I would immediately reduce the working force of the mine to six men, to be kept sinking on the main land, as at Spar Island; the quantity of copper ore to be made ready for the market is not dependant on the number of hands, but on the power of machinery.

*Questions proposed to Capt. John Tregoning by the
Directors of the British North American Mining
Company, respecting their Mine at Prince's Har-
bour, Lake Superior, with his Answers thereto.*

Montreal, 26th June, 1849.

Question 1.—What is your candid and unbiassed opinion of the Mine at Prince's Harbour, belonging to this Company, after working it for the last nine months,—both as regards silver and copper?

Answer.—The Mines at Prince's Harbour, belonging to the British North American Mining Company, are of a very encouraging nature, and first rate mining character; and that during the workings, for the last eleven months, it has been proved, that silver is disseminated throughout a very considerable portion of the vein; and that there is a large deposit of copper ore discovered; and that the branches of the lode are converging, as we descend; and, consequently, we have every reason to expect, that both silver and copper will be found in a body, if the mining works be carried on as I have proposed.

Question 2.—What shafts have you sunk on Spar Island, and what depths have you gone?

Answer.—There are two Shafts on Spar Island; the deepest forty-seven feet, and the shallowest twenty-four feet.

Question 3.—What is the quality of the ore, and what per centage does it yield when taken out in the rough, and what would it yield, when crushed and washed?

Answer.—There are fifty tons of ore at the surface; when in its rough state, it yields 2 4-10ths per cent. of copper, and when pulverized and washed it gives 24 per cent of copper.

Question 4 and 5.—Is it your opinion that the copper ore on Spar Island, can be worked and got out with perfect safety under water; and can it be got out in abundance, and with economy?

Answer.—It is my opinion, that the water will not be of any interruption to the workings on Spar Island; and that it can be worked in perfect safety. If the lode only holds out as it is, the copper ore can be taken out in great abundance; and for ore producing 24 per cent. of copper, will cost about £7 per ton.

Question 6.—What is the size of the vein?

Answer.—The size of the vein on Spar Island is twenty feet, and on the Main Land, including all the ramifications,—which in depth are converging,—it is eighty-four feet.

Question 7.—What description of machinery would you recommend to be erected; and what would be its probable cost?

Answer.—I would recommend a steam engine to be constructed, with hawling and drawing engine on one side, stamp-

ing mill and blast cylinders on the other. The cost would be about £750.

Question 8.—Where would you recommend the machinery to be erected; on the Main Land, or on Spar Island?

Answer.—Upon Spar Island.

Question 9.—How many men could be employed advantageously on Spar Island? State their qualifications.

Answer.—The number of hands must be governed by the power of the machinery. You might commence with twenty—half Cornish, and half Canadians.

Question 10.—How many men would you employ on the Main Land?

Answer.—I would employ six men in the shaft on the Main Land, and four men in the gallery—half Cornish and half Canadians,—I am calculating, of course, as if the machinery was to be erected,—and if I was sure to get Canadians as well learnt as those already in the employ of the Company, I should not hesitate to take them in greater proportion.

Question 11.—Are you of opinion, that the silver will be found, after sinking twenty fathoms, in either of the shafts?

Answer.—I really believe that there will be silver found, in the lode, when either of the shafts, on the Main Land, shall be sunk to twenty fathoms in depth.

Question 12.—Do you consider this mine would be a valuable mine in England; and what amount would be spent in testing it?

Answer.—I believe that if this mine were in any part of Europe, that there would be £10,000 raised to set it working; and I have known mines of not near such good prospects, sell in England for great sums. But whether any foreign mine would sell now in England, I don't know: if the spirit is for foreign speculation, it would sell quick; but if foreign speculations are looking gloomy, it is likely to lay on hands.

Question 13.—In giving out the work by contract, how many tons ought each good man be able to work out per week, and what rate of payment ought to remunerate him; or is it more advantageous to the Company to pay monthly wages, such as we now do?

Answer.—The ground is so changeable, that it is impossible for me to give an estimate of what number of yards a certain number of men should drive, or sink in a given time. I should make the agreements conditional with the workmen; so that contract work might be given them, as I am always for contract work,—bringing every man to take an interest with what he has in hand.

Question 14.—Can you inform the Directors what the working of such a mine would be in England?

Answer.—The working of such a mine in England would be commenced as I have advised it to be done in this country.

Question 15.—Is it desirable to work both shafts on the Main Land and the Gallery, and how many men would these works require, and what would be the results when accomplished?

Answer.—I would advise only one of the shafts to be sunk, by six men, until the machinery be erected; and the results when accomplished, would be, in my opinion, the discovery of silver in a body, in the form of a partial 'band' or 'shoot'.

Question 16.—Is there sufficient iron and steel, gunpowder and fuse, to last a party of ten men for twelve months.

Answer.—There is plenty of iron and steel in the mine to hold twelve months, and I believe plenty of gunpowder. I know there is plenty of fuse.

Question 17.—Do you consider the quality of the American fuse equal to the English? and what quantity would be consumed monthly by such a party?

Answer.—The American Fuse is not so good as the English. For twelve men it would require 1 ton, 4 cwt. of powder, for one year,—double bound fuse for sinking, and single bound for driving.

Question 18.—Do you consider Samuel Tippet a sufficiently competent and experienced miner to work out your suggestions, and equal to any emergency, which may arise, as the works progress, and in whom the Directors can place implicit confidence: and would you advise the Company, should the metal be found, to engage another mining officer, of equal qualifications to your own; or what would you recommend them to do?

Answer.—I believe Samuel Tippet to be fully competent to carry on the works in Prince's Bay Mine, or any other mine; and as soon as the siiver is reached, by the sinking of the shaft, I would advise the Company to get a master smelter, which will be all the Directors will require.

(Signed)

JOHN TREGONING.

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